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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10-027,071	12/20/2001	Joseph R. Ward	D5216	9833

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INTERNATIONAL ENGINE INTELLECTUAL PROPERTY COMPANY  
4201 WINFIELD ROAD  
P.O. BOX 1488  
WARRENVILLE, IL 60555

EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/027,071

Applicant(s)

WARD, JOSEPH R.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 2 and 10 is/are objected to.
- 8) ☒ Claim(s) 1-13 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Invention I (claims 1-5 and 9-13) in Paper No. 5 is acknowledged. The traversal is on the applicant's ground(s) that the product of Invention II (claims 6-8) cannot be made by another process. This is not found persuasive because the product of Invention II can also be made by a casting process that does not depend on consecutive steps of alloying the molten gray cast iron with tin, followed by adding silicon as an inoculant. Instead, these alloying and adding steps can be carried out simultaneously to result in nearly identical cast products as those claimed in product claims 6-8.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

2. Claims 2 and 10 are objected to because of the following informalities: in claims 2 and 10, 2<sup>nd</sup> and 6<sup>th</sup> lines of both claims, "phosphorous" should be changed to "phosphorus". In claim 2, 3<sup>rd</sup> and 4<sup>th</sup> lines, a comma should be added after "ingots". In claim 2, 4<sup>th</sup> line, "material" should be added after "iron scrap". In claim 10, 3<sup>rd</sup> line, a comma should be added after both instances of "ingots". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-5 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "an important section" in claims 3-5 and 11-13 is an unclear term which renders the claims indefinite. The term "an important section" should be given specific meaning (as is disclosed in the specification in paragraph [0011] on page 3) within the claims, as all features of a cast part are considered as "important". This term should be changed to "sections that are required to have the greatest strength and/or machinability" (or an equivalent) throughout the claims.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-5 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tache (US 3,299,482) in view of Bostater et al. (US 4,493,359).

Tache discloses a gray iron casting process and composition for making engine component parts by adding a tin alloying element, in which the composition includes (by weight percent): 3.05 to 3.45% carbon (carbon equivalent between 3.76 and 4.15%), 1.7 to 2.1% silicon, maximum 0.15% phosphorus, maximum 0.12% sulfur, 0.5 to 0.9% manganese, maximum 0.15% chromium, 0.05 to 0.08% tin, and balance iron (column 1, lines 11-16; column 3, lines 1-56 and 70-76; and column 4, lines 1-46). Preferably, the tin is added to the molten gray iron in the cupola during filling of the pouring ladles by addition of preweighed chunks of metallic tin in the range of 0.05 to 0.08% by weight, resulting in a molten alloy of tin with gray iron, followed by subsequent (as soon as possible) casting into mold(s) to produce the engine components (column 3, line 75; and column 4, lines 1-46). Although Tache discloses a composition that includes silicon within the gray iron alloy, Tache does not disclose the step of adding further silicon as an inoculant to the molten gray iron alloy.

However, Bostater et al. disclose a method for making cast iron engine blocks from a casting process with molten gray iron, in which a silicon-containing inoculant (foundry grade ferrosilicon containing 23% iron and 7.5% silicon, ranging from 100 to 300 ounces of inoculant per 1,600 pounds of molten metal) is added to a molten gray iron composition (that already contains silicon) and stirred within a casting ladle for subsequent pouring into casting molds (abstract; column 1, lines 6-13; column 3, lines

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3-21 and 52-68; column 4, lines 1-3 and 50-60; column 5, lines 54-68; column 6, lines 1-15; column 7, lines 4-26; and Figure). A sample of molten metal in the holding furnace was taken periodically for thermal analysis to obtain control of the carbon equivalent value (at a desired level of about 4%) within the molten gray iron (column 5, lines 42-53; and Figure). Castings of various cross-sections, including those that have very thin walls which would otherwise have high casting scrap losses, are able to be produced due to the molten metal homogeneity and addition of silicon-containing inoculant, with the advantageous feature of achieving a low casting scrap rate of less than 5% (column 2, lines 21-45; column 3, lines 3-21 and 33-40; column 4, lines 44-65; column 5, lines 54-68; column 6, lines 1-15; and column 7, lines 23-39). The additional step of adding a silicon-containing inoculant is advantageous for producing gray iron castings of various cross-sections with a substantial increase in the uniformity of molten metal as poured (column 4, lines 44-49; column 5, lines 57-68; column 6, lines 1-15; and column 7, lines 23-40).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the gray iron casting process and composition for making engine component parts by adding a tin alloying element, as disclosed by Tache, by using the additional step of adding and stirring a silicon-containing inoculant to a molten gray iron composition that already includes silicon, as taught by Bostater et al., in order to produce gray iron castings of various cross-sections with a substantial increase in the uniformity of molten metal as poured (Bostater et al.; column 4, lines 44-49; column 5, lines 57-68; column 6, lines 1-15; and column 7, lines 23-40).

**Conclusion**

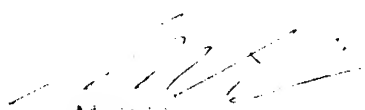
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Tanaka et al., Subramanian, Lawrence et al., and Henych references are also cited to show related art.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK  
kpk  
May 6, 2003

  
M. ALEK  
PRIMER  
EXAMINER